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**Germination of fern spores in darkness.**—It has been almost the universal experience of those who have investigated the germination of fern spores that at usual room temperature and with so-called inorganic nutrition they will not germinate in complete absence of light. However, at high temperature, or in sugar or peptone solutions, germination in total darkness has been induced. FISCHER[19] has now found that the spores of one of the commonest and most widely distributed ferns, *Polypodium vulgare*, are able to germinate in darkness at 25° just as well as in light. This is probably the best case on record for germination in darkness, since prothallia were actually obtained, and not merely a bursting of the exospore, as LAAGE reported for *Osmunda regalis* and other ferns. The prothallia formed in darkness differ somewhat from those of the same age produced in light, being composed of more and longer cells. It is probable that some limiting factor prevents the germination of the spores of most ferns in darkness; and discovery of the proper conditions for germination may show that the spores of many species are capable of developing prothallia without light.—CHARLES A. SHULL.

**Vegetation of Nockamixon Rocks and Navesink Highlands.**—It is important to have on record the natural vegetation of areas that are becoming densely populated, since tracts that have escaped the modifying influence of the ax and the plow are being reduced to a minimum. HARSHBERGER has contributed much to this record, and has lately investigated[20] the plant formations on a series of cliffs, known as the Nockamixon Rocks, on the Delaware River in Pennsylvania. Upon the talus a climax mesophytic forest has developed, characterized by the beech, maple, and associated forms, with an oak forest upon the crest of the cliffs and a mixed one upon the larger rock shelves.

More recently he has studied the Navesink Highlands[21] upon the coastal plain of New Jersey. The forest is here dominated by the chestnut and the chestnut oak, with a more xerophytic association at the summit, characterized by dwarfed trees placed at wide intervals.—GEO. D. FULLER.

**Plant remains in Scottish peat mosses.**—LEWIS has published a fourth paper[22] upon this subject, the present investigation dealing with the Scottish Highlands and Shetland. An appendix also discusses the Icelandic peat deposits. His former conclusions as to the principal stages in the history of vegetation over peat-covered areas, since the later stages of the glacial period, were abundantly confirmed. The stages are as follows: (1) an arctic-alpine vegetation on the moraine deposited by the last ice sheet; (2) a forest of birch and hazel; (3) a layer of arctic-alpine plants, occurring down to sea level in Shetland; (4) a forest of pine, hazel, and birch, occurring up to 3200 feet; (5) a layer of peat, accumulated from stage 4 to the present day, consisting entirely of moorland plants. This means an alternation of two forest beds with two arctic beds, before the peat came in.—J. M. C.

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[20] HARSHBERGER, JOHN W., The plant formations of the Nockamixon Rocks, Pennsylvania. Bull. Torr. Bot. Club **36**:651–673. 1909.

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[22] LEWIS, FRANCIS J., The plant remains in the Scottish peat mosses. Part IV. Trans. Roy. Soc. Edinburgh **47**:793–833. *pls. 5.* 1911.

**The structure of Mesoxylon.**—In 1910, SCOTT and MASLEN published *Mesoxylon* as a new genus of Cordaitales, which included five species. One of these, *M. Sutcliffii*, has now been studied by MASLEN,[23] so far as the structure of stem and leaf is concerned. The name of the genus refers to the fact of its intermediate position between *Cordaites* and *Poroxylon*, and the known species appear to bridge the gap almost completely. The present study confirms this original conclusion, the particular species studied being much nearer to *Cordaites* than *Poroxylon*. A condensed summary is given of the resemblances of *M. Sutcliffii* to each of these genera, and also its differences in each case. One of the most interesting features of *Mesoxylon* is that it illustrates the gradual extinction of centripetal wood and the establishment of endarch structures in the *Cordaites*.—J. M. C.

**The chromosomes of Dahlia.**—ISHIKAWA[24] finds 16 and 32 chromosomes in *Dahlia coronata*, but 32 and 64 in nine other species and races. In the pollen mother cells of *D. coronata* in the heterotypic prophase, the chromosomes are paired, but in the other species the pairing is seen also at the homotypic mitosis, indicating, according to ISHIKAWA, that the vegetative cells of these species are tetraploid.

From the literature and his own observations, the reviewer has tabulated the number of chromosomes in more than 30 species of composites, and finds that the number varies from 3–6 in *Crepis virens* to 21–42 in *Hieracium flagellare*, with 8–16 or 9–18 as the most usual numbers. The extraordinary variety of form in Compositae may be related to the variation in the chromatin.—CHARLES J. CHAMBERLAIN.

**Proteolytic enzyme of Drosera.**—The proteolytic enzyme of four species of *Drosera* (*D. auriculata*, *D. Menziesii*, *D. peltata*, *D. Whittakeri*) has been investigated by Miss JEAN WHITE,[25] who finds a pepsin-like enzyme present in all of them, but unassociated with any peptolytic or tryptic enzyme. Peptic digestion occurred either in acid, basic, or neutral medium, every test giving a good biuret reaction for peptones; but in no instance could the faintest trace of amides be found with the tryptophane reaction. This dis-

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